



Sustainable and Resilient Charlotte

Goals of today's presentation:

- Provide updates on our work building a sustainable and resilient Charlotte
 - SEAP and Climate Challenge



American Cities
Climate Challenge

1. By 2030, **strive to source 100% of City's energy use** in its buildings and fleet from **zero carbon sources**.
2. By 2050, **strive to become a low carbon city** (below 2 tons CO2e/person).
3. Develop an **action plan** as a framework to achieve goals.

Resolution passed by Council June, 2018



Charlotte community members showing support for the Sustainable and Resilient Charlotte by 2050 Resolution. Photo by Michael Zytow.



CHARLOTTESM Strategic Energy Action Plan



Buildings

Employee
Engagement

Equity

Community
Engagement

Workforce
Development

Energy
Generation

Transportation

American Cities
Climate Challenge

SEAP adopted by Council December, 2018

Internal/Organizational

- Action Area 1: Structural Change
- Action Area 2: Initiate Citywide Communication Toward A Low Carbon Future
- Action Area 3: Develop Smart Data Approaches
- Action Area 4: Develop And Implement Resilient Innovation Districts (RIDS)
- Action Area 5: Strive Toward 100 Percent Zero Carbon Municipal Buildings By 2030
- Action Area 6: Strive Toward 100 Percent Zero Carbon City Fleet By 2030



Community

- Action Area 7: Near Zero Carbon Non-municipal Buildings By 2050
- Action Area 8: Facilitate Rapid Uptake Of Sustainable Modes Of Transportation
- Action Area 9: Develop And Implement Strategy For Deploying Low Carbon Infrastructure Generation
- Action Area 10: Develop Green Workforce Pipeline In Support Of Energy Transition
- Action Area 11: Establish Public-Private-Plus Partnerships To Accelerate Transition To A Low Carbon Future



The **American Cities Climate Challenge** is a Bloomberg initiative that aims to accelerate and deepen U.S. cities' efforts to create the **greatest climate impact through 2020** and showcase the benefits – **good jobs, cleaner air, and cost savings** – that climate solutions bring.

BUILDINGS

- Energy Efficiency Retrofits
- Solar Energy
- Workforce Development
- Financing

TRANSPORTATION

- Financing
- Market Transformation for EVs
- Mobility Vision
- Charlotte2040 Comprehensive Plan
- Shared Mobility





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1st YEAR: PREPARATION AND ASSESSMENT

- Internal Teams
 - Two Climate Challenge Climate Advisors
 - Climate Challenge Action Teams
 - SEAP Operations Team
- Partners
 - Technical Climate Challenge Partners
 - Mecklenburg County Air Quality
 - Duke Energy - MOU
 - Rocky Mountain Institute's eLab Accelerator
- Finance
 - Total Cost of Ownership Workshop
- Data
 - Climate Challenge Dashboard
- Communications
 - SEAP Communications Plan
- External Teams
 - Four External Content Groups



ENERGY FOUNDATION
building a new energy future



WORLD
RESOURCES
INSTITUTE

1st YEAR: ENGAGEMENT

- Community members representing non-profit, private, and public sectors
- Groups charged with executing community actions to achieve low-carbon future
- Held first of quarterly meetings with all four groups
- Each quarter groups develop actions and sub-groups to further SEAP Community Action Areas



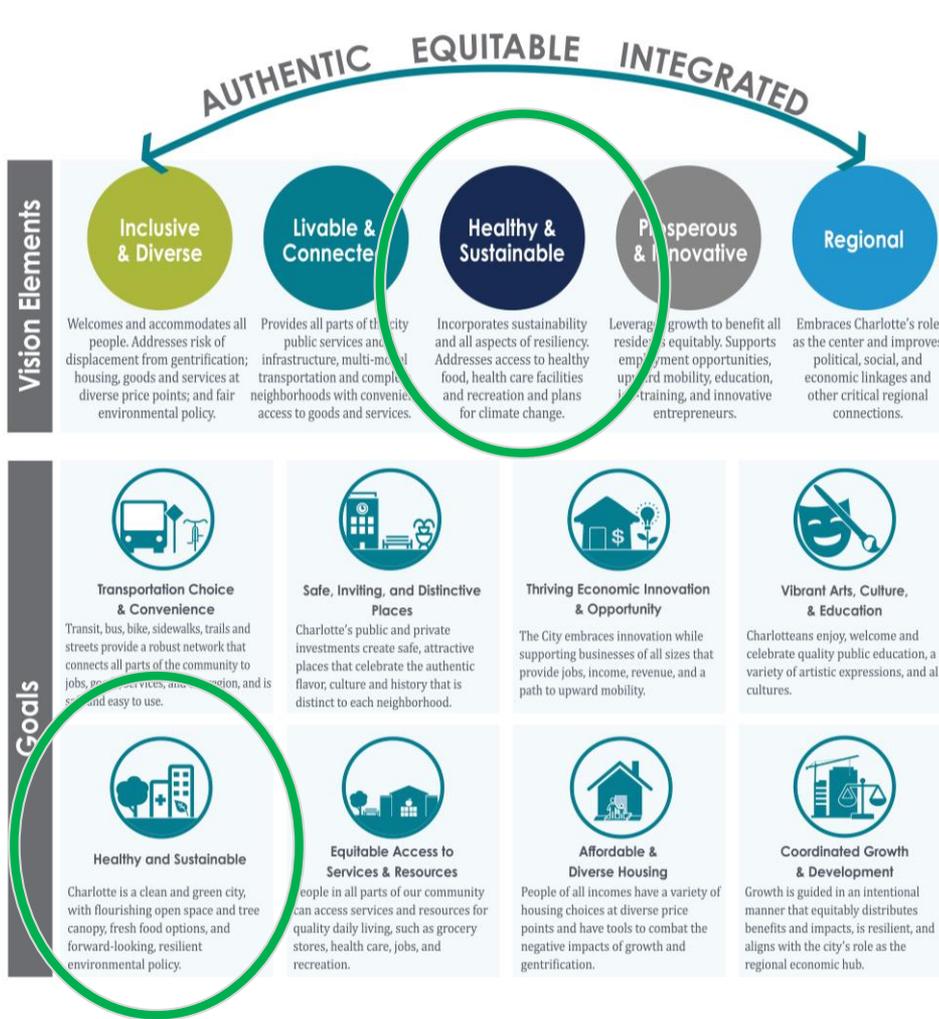
Buildings

Workforce
Development
and Equity

Energy
Generation

Transportation

1st YEAR: ALIGNMENT



Input from over 1,500 people confirmed 8 goals and 6 vision elements, that will **make our city more resilient**. Resiliency ensures Charlotte is **prepared for and responds to challenges** such as **climate change**, and economic shifts.



WORKFORCE DEVELOPMENT AND EQUITY

- Through P.I.E.C.E 2.0, train individuals in building efficiency, solar energy, and other emerging technologies
- Enroll 100 students in related workforce areas
- Secure corporate advisory partners to inform curriculum, engage students, and hire graduates
- Leverage SEAP external content groups





BUILDING EFFICIENCY

- Partner with consultant for condition assessments and energy audits
- Identify opportunities for energy efficient retrofits across seven cultural venues
- Engage the arts and sciences community



Fleet Pilot

- Leverage data science to analyze how we drive our fleet
- Identify opportunities for alternative fuel vehicles and infrastructure

Aviation

- Purchased five E-buses and electric chargers at airport



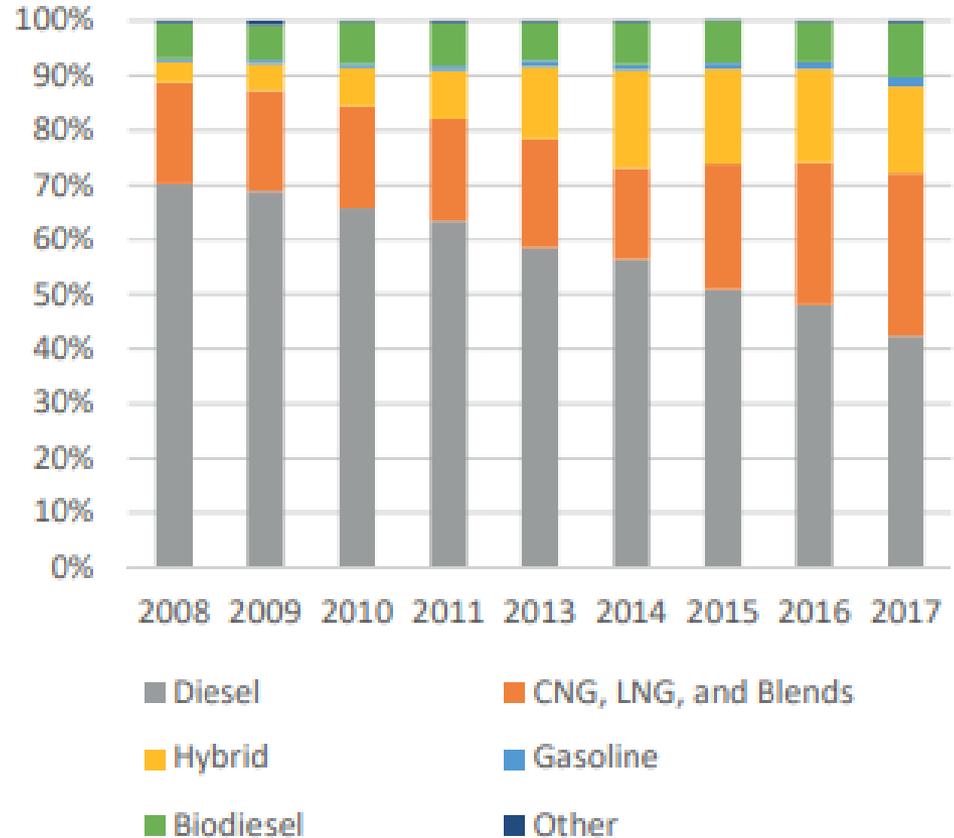
Current U.S. Transit Bus Inventory

- Diesel Buses dominate the market, but numbers are declining
 - **16% Hybrid Electric**
 - **29.9% CNG**

Source -2018 American Public Transit Association (APTA) Fact Book

Transition to Alternative Fuels

Percentage of Buses by Fuel Source

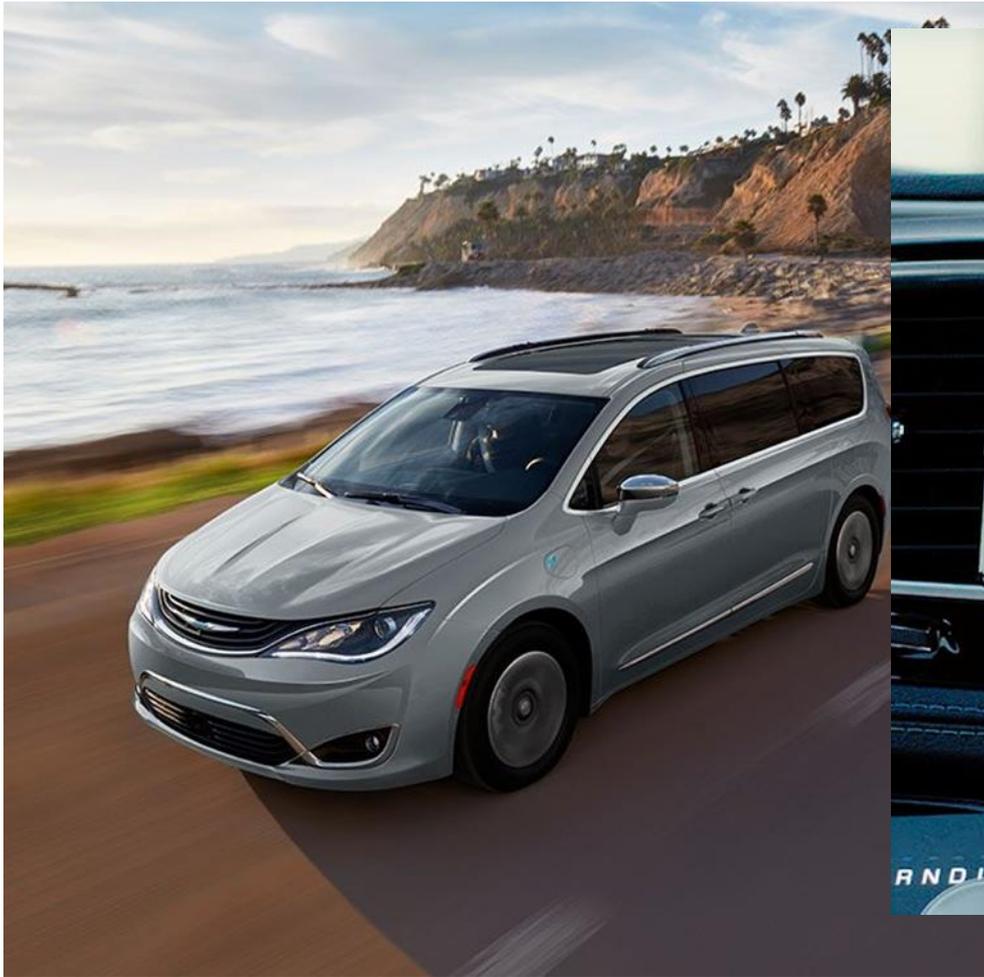


CATS Current Fleet

- 300 Fixed Route Buses
 - 52 Hybrid Electric Buses
 - 248 Diesel Fuel Buses
- CATS 5 year Capital Program includes \$66 million to replace up to 120 buses
- CATS bus replacement program – 80% federal funds/20% local funds (sales tax)



Hybrid Electric Vanpool Testing



MORE HIGHLIGHTS

- ✓ Conducted first Climate Challenge Stocktake
- ✓ Researched onsite and offsite solar, including Duke Green Source Advantage Program; completed RFP and interviews for utility scale solar
- ✓ Running 30 compressed natural gas trucks in SWS, which is 35% of our automated refuse trucks
- ✓ Received 2019 Smart Fleet Champion Award
- ✓ Received \$370k in grant funding for solar EV charging stations and propane fuel kits to diversify fuel sources
 - ✓ CLT Water- Propane conversion kits
 - ✓ General Services - Solar-powered, mobile, EV charging stations
 - ✓ Landscape Management - Propane conversion kits

- Complete audits of cultural facilities
- Analyze solar leasing on existing rooftops
- Conduct educational campaign to promote National Drive Electric Week (September 18)
- Finalize analysis to determine whether to apply to Duke Energy's Green Source Advantage Program
- Finalize RFP for sustainable energy training for corporate partners for job placements (P.I.E.C.E. 2.0)
- * Council will discuss the Tree Ordinance Text Amendment for Urban Sites on September 3, Strategy Session

24% of Climate Challenge milestones completed!



QUESTIONS & ANSWERS
